

WHAT IS CLAIMED IS:

1. A forceps comprising:

a first blade having an inner surface, an outer surface, a tip end and a proximal end;

a second blade having an inner surface, an outer surface, a tip end and a proximal end;

a blade adjustment joint disposed proximate to the proximal end of the first and the second blades;

the first blade being rotateably connected to the blade adjustment joint, wherein the blade adjustment joint selectively allows the first blade to rotate independently of the second blade and selectively prevents the first blade from rotating independently of the second blade.

2. The forceps of claim 1, wherein the blade adjustment joint comprises:

a bolt having a head end and a threaded end;

a nut having a contact surface;

the first blade includes an opening proximate to the proximal end;

the second blade includes an opening proximate to the proximal end;

the bolt being adapted to pass the threaded end through the first blade opening and the second blade opening and the head end engages the outer surface of the first blade;

the nut threadably engagable with the threaded end of the bolt; and

the contact surface of the nut contacting the outer surface of the second blade.

3. The forceps of claim 2, wherein the contact surface of the nut frictionally engages the outer surface of the second blade and the head end of the bolt frictionally engages the outer surface of the first blade.

4. The forceps of claim 2, wherein the inner surface of the first blade frictionally engages with the inner surface of the second blade.

5. The forceps of claim 2, further comprising:
at least one electrical terminal electrically connected to at least one of the first blade and the second blade; and
an insulator disposed between the first blade and the second blade to electrically isolate the first blade from the second blade.

6. The forceps of claim 1, wherein the blade adjustment joint comprises:
a bolt having a first blade end and a second blade end;
the first blade includes an opening proximate to the proximal end;
the second blade includes an opening proximate to the proximal end;
the bolt being adapted to pass through the first blade opening and the second blade opening;
a spring disposed on the bolt between the inner surfaces of the first and the second blades, wherein the spring biases the outer surface of the first blade to frictionally

engage the first blade end and biases the outer surface of the second blade to frictionally engage the second blade end; and

wherein a pressure applied to one of the first and the second blades, in a direction parallel to the spring, comprises the spring, disengages one of the first blade and the second blade from the respective first and second blade end.

7. The forceps of claim 6, further comprising:

at least one electrical terminal electrically connected to at lease one of the first blade and the second blade; and
an insulator disposed between the first blade and the second blade to electrically isolate the first blade from the second blade.

8. The forceps of claim 1, wherein the blade adjustment joint comprises:

a bolt having a first blade end and a second blade end;
the first blade includes an opening adjacent to the proximal end;
the second blade includes an opening adjacent to the proximal end;
the bolt being adapted to pass through the first blade opening and the second blade opening;
a spring disposed on the bolt between the outer surface of the first blade and the first blade end wherein the spring biases the inner surface of the first blade to frictionally engage the inner surface of the second blade; and

wherein a pressure applied to the first blade, in a direction parallel to the spring, comprises the spring and disengages the first blade from the second blade.

9. The forceps of claim 8, further comprising:

at least one electrical terminal electrically connected to at least one of the first blade and the second blade; and
an insulator disposed between the first blade and the second blade to electrically isolate the first blade from the second blade.

10. The forceps of claim 8, wherein the blade adjustment joint further comprises:

a second spring disposed on the bolt between the outer surface of the second blade and the second blade end, wherein the second spring biases the inner surface of the second blade to frictionally engage the inner surface of the first blade; and
wherein a pressure applied to the second blade, in a direction parallel to the second spring, compresses the spring and disengages the second blade from the first blade.

11. The forceps of claim 10, further comprising:

at least one electrical terminal electrically connected to at least one of the first blade and the second blade; and
an insulator disposed between the first blade and the second blade to electrically isolate the first blade from the second blade.

12. A forceps comprising:

a first blade having an inner surface, an outer surface, a tip end, a proximal end and a first joint position disposed between the tip end and the proximal end; a second blade having an inner surface, an outer surface, a tip end a proximal end and a second joint position disposed between the tip end and the proximal end; a fixing joint for preventing the rotation of the distal ends of the first and second blades disposed adjacent the proximal end of the first and the second blades; a first tip adjustment joint disposed at the first and second joint positions; and the tip ends of the first blade pivotably connected to the first tip adjustment joint, wherein the first tip adjustment joint selectively allows the tip end of the first blade to pivot independent of the second blade and selectively prevents the tip end of the first blade from pivoting independent of the second blade.

13. The forceps of claim 12, wherein the tip adjustment joint comprises:

a bolt having a head end and a threaded end; a nut having a contact surface; the first blade joint position includes an opening adjacent to the proximal end; the second blade joint position includes an opening adjacent to the proximal end; the bolt being adapted to have the threaded end pass through the first blade opening and the second blade opening, and the head end being adapted to engage the outer surface of the first blade; the nut being threadably engagable with the threaded end of the bolt; and

the contact surface of the nut contacting the outer surface of the second blade.

14. The forceps of claim 13, wherein the contact surface of the nut frictionally engages the outer surface of the second blade and the head end of the nut frictionally engages the outer surface of the first blade.

15. The forceps of claim 13, wherein the inner surface of the first blade frictionally engages with the inner surface of the second blade.

16. The forceps of claim 13, further comprising:
at least one electrical terminal electrically connected to at least one of the first blade and the second blade; and
an insulator disposed between the first blade and the second blade to electrically isolate the first blade from the second blade.

17. The forceps of claim 12, further comprising:
a second tip adjustment joint;
wherein the first tip adjustment joint is disposed at the first joint position and the second tip adjustment joint is disposed at the second joint position.

18. The forceps of claim 12, wherein the tip adjustment joint comprises:

a first shaft rotably disposed within the fixing joint and having an inner end disposed between the first and the second blades and an opposite outer end; a first gear disposed on the inner end of the first shaft; a second shaft fixed to the first joint position and rotatably disposed through the second joint position; and a second gear disposed on the second shaft and meshing with the first gear, wherein rotating the outer end of the first shaft results in rotating the first gear, the rotation of the first gear rotates the second gear and rotates the tip end of the first blade.

19. The forceps of claim 18, wherein the first gear and the second gear are worm gears.

20. The forceps of claim 12, wherein the tip adjustment joint comprises:
a first shaft slidably and rotably disposed within the fixing joint and having an inner end disposed between the first and the second blades and an opposite outer end; a first gear disposed on the inner end of the first shaft; a second gear disposed on the inner end of the first shaft and opposite the first gear, wherein rotating the first shaft rotates the first and the second gears; a second shaft fixed to the first joint position a third shaft fixed to the second joint position;

a third gear disposed on the second shaft and selectively meshing with the first gear, wherein rotating the first gear rotates the third gear and rotates the tip end of the first blade;

a fourth gear disposed on the third shaft and selectively meshing with the second gear, wherein rotating the second gear rotates the fourth gear and rotates the tip end of the second blade and, wherein when the first and the third gears are meshed, the second and the fourth gears are disengaged, and when the second and the fourth gears are meshed, the first and the third gears are disengaged.

21. The forceps of claim 23, wherein the tip adjustment joint further comprises:

a first gear stop disposed on the first shaft to prevent the rotation of the third gear when the first gear is disengaged; and to prevent the rotation of the fourth gear when the second gear is disengaged.

22. The forceps of claim 23, wherein the tip adjustment joint further comprises:

a first gear stop disposed on the first shaft for preventing the rotation of the third gear when the first gear is disengaged; and
a second gear stop disposed on the first shaft for preventing the rotation of the fourth gear when the second gear is disengaged.

23. The forceps of claim 20, wherein the first, the second, the third, and the fourth gears have a plurality of teeth with a particular spacing, and wherein the spacing of the teeth on the first gear equals the spacing of the teeth on the second, the third and the fourth gears.

24. The forceps of claim 20, wherein the first and the third gears have a plurality of teeth with a first spacing, and the second and the fourth gears having a plurality of teeth with a second spacing, wherein the first spacing of the teeth does not equal the second spacing of the teeth.